

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 January 2004 (29.01.2004)

PCT

(10) International Publication Number
WO 2004/009075 A1

(51) International Patent Classification⁷: **A61K 31/337**

(21) International Application Number:
PCT/KR2003/001427

(22) International Filing Date: 18 July 2003 (18.07.2003)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2002-0042791 20 July 2002 (20.07.2002) KR

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

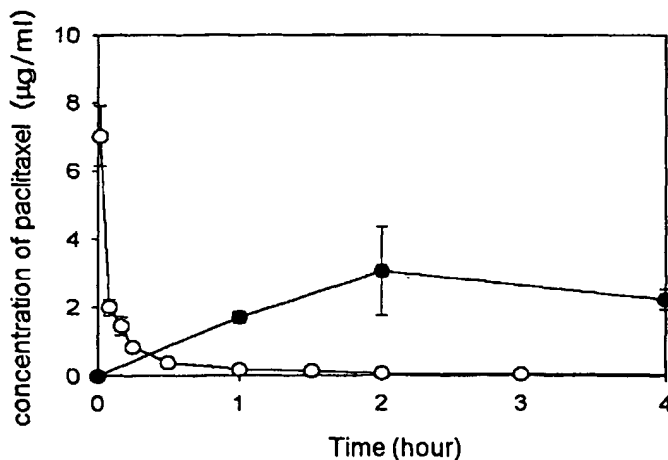
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: COMPOSITION FOR SOLUBILIZATION OF PACLITAXEL AND PREPARATION METHOD THEREOF



and 0.01~20% by weight of paclitaxel. The composition of the present invention is an effective paclitaxel delivery system since the composition solubilizes paclitaxel, does not form aggregates after being dispersed in water, adsorbs well on the intestinal wall, and therefore has high bioavailability.

(57) Abstract: The present invention relates to a paclitaxel composition and the preparation methods thereof to solubilize paclitaxel wherein said composition comprises 4~90% by weight of at least one selected from the monoglycerides, 0.01~90% by weight of at least one oil and 0.01~20% by weight of paclitaxel. Also the present invention relates to a paclitaxel composition including emulsifiers and the preparation methods thereof to solubilize paclitaxel wherein said composition comprises 4~90% by weight of at least one selected from the monoglycerides, 0.01~90% by weight of at least one oil, 0.01~90% by weight of at least one emulsifier

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR03/01427

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 A61K 31/337

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7; A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

STN Online, CA on CD, KIPASS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO0213815A1 (Hanmi Pharm. Co.) 21 February 2002 (2002-02-21) page 2-7; claim 1, 33, 72 page 3, line 23-31; claim 12-16, 19, 24, 50-54, 57, 62 page 4, line 30-page 5, line 7; claim 25-26, 63-64 page 5, line 9-page 6, line 8; claim 42, 44-46 page 6, line 10-34; claim 2-6, 8-11, 34-38, 40-41, 48-49 page 7; claim 27, 65	1-6, 8-16, 19, 24-27, 33-38, 40-42, 44-46, 48-54, 57, 62-65, 72
A	Alex Sparreboom et al., "Limited oral bioavailability and active epithelial excretion of paclitaxel (Taxol) caused by P-glycoprotein in the intestine", Proc. Natl. Acad. Sci. USA, 1997, 94, 2031-2035 whole document; claim 12, 15-23, 50, 53-61	12, 15-23, 50, 53-61
A	WO0101960A1 (Lipocine Inc.) 11 January 2001 (2001-01-11) page 4-5; claim 1, 33 page 6-10; claim 4-6, 8, 36-38, 40 page 25-26; claim 2-3, 34-35 section 2; claim 42-46 section 3; claim 11-13, 15-16, 18-19, 21-23, 49-51, 53-54, 56-57, 59-61	1-6, 8, 11-13, 15-16, 18-19, 21-23, 33-38, 40, 42-46, 49-51, 53- 54, 56-57, 59-61

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Date of the actual completion of the international search

28 AUGUST 2003 (28.08.2003)

Date of mailing of the international search report

28 AUGUST 2003 (28.08.2003)

Name and mailing address of the ISA/KR



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Republic of Korea

Facsimile No. 82-42-472-7140

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Telephone No. 82-42-481-5606



INTERNATIONAL SEARCH REPORT

International application No.

PC/KR03/01427

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO0168139A1 (Korea Institute of Science and Technology) 20 September 2001 (2001-09-20) Example 24 and page 7, line 1-10; claim 33-35 page 8, line 1-3; claim 63-64 page 9-10; claim 66-72	33-35, 63-64, 66-72
P, X	WO03045357A1 (Transform Pharmaceuticals, Inc.) 5 June 2003 (2003-06-05) claim 1, 2, 20-22 and page 17, line 21; claim 1, 28-33, 66-72 page 14, line 21-34; claim 2-6, 8, 34-38, 40 page 15, line 6-27; claim 10-11, 25-26, 48-49, 63-64 page 15, line 30-page 16, line 22; claim 42, 44-46 page 16, line 23-31; claim 12, 15-24, 50, 53-62 page 18-19; claim 27, 65 page 23, line 3; claim 13, 51	1-6, 8, 10-13, 15-38, 40, 42, 44-46, 48-51, 53-72
P, A	WO02064132A2 (Pharmacia & Upjohn Company) 22 August 2002 (2002-08-22) page 12, line 7-15; claim 1, 4, 8, 25-26, 33, 36, 40, 63-64 page 12, line 17-28; claim 2-3, 34-35 page 13, line 19; claim 42, 44-46 page 13, line 23-24; claim 10-12, 15, 48-50, 53 page 13, line 33; claim 16, 21, 24, 54, 59, 62	1-4, 8, 10-12, 15-16, 21, 24-26, 33-36, 40, 44-46, 48-50, 53-54, 59, 62-64

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR03/01427

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
W00213815A1	21.02.2002	US20020049158A1	25.04.2002
		KR2013174A	20.02.2002
		JP2002080399A2	19.03.2002
		EP1184034A3	13.11.2002
		EP1184034A2	06.03.2002
		AU0166399A5	25.02.2002
W00101960A1	11.01.2001	US20030104048A1	05.06.2003
		US20020032171A1	14.03.2002
		US6267985	31.07.2001
		JP2003503440T2	28.01.2003
		EP1194120A1	10.04.2002
		CA2375083AA	11.01.2001
		AU0053131A5	22.01.2001
W00168139A1	20.09.2001	US20030099675A1	29.05.2003
		EP1263468A1	11.12.2002
		CN1422163T	04.06.2003
		AU0141245A5	24.09.2001
W003045357A1	05.06.2003	None	
W002064132A2	22.08.2002	W002056878A3	19.12.2002
		W002056878A2	25.07.2002
		US20030045563A1	06.03.2003
		US20020156124A1	24.10.2002